

IN THE CLAIMS:

1. (Currently Amended) A bonding apparatus comprising:
 - a bonding tool for holding a chip;
 - a substrate stage for mounting a substrate thereon;
 - a moving mechanism for moving said bonding tool and said substrate stage relatively to each other in a horizontal plane;
 - an up-and-down mechanism for moving up and down said bonding tool;
 - a chip recognition camera being disposed to be lower than a level of a substrate mounted surface of said substrate stage to thereby recognize said chip held by said bonding tool from a position below said chip so that said chip and said substrate are subjected to positioning on the basis of a recognition result of said chip recognition camera and said bonding tool is moved down to bond said chip onto said substrate, wherein said chip recognition camera is focussed so as to recognize a lower surface of said chip ~~is recognized by said chip recognition camera~~ when the lower surface of said chip is located substantially on a level with a chip bonding surface of said substrate, and
 - a substrate recognition camera disposed above the substrate stage to recognize the substrate mounted on the substrate stage,
- wherein the chip and the substrate are subjected to positioning on the basis of recognition results of the chip recognition camera and the substrate recognition camera.
2. (Original) A bonding apparatus according to claim 1, wherein a position where said chip recognition camera is focused is set to a position which is substantially on a level with the chip bonding surface of said substrate.

3. (Currently Amended) A bonding apparatus according to claim 1 comprising:
a bonding tool for holding a chip;
a substrate stage for mounting a substrate thereon;
a moving mechanism for moving said bonding tool and said substrate stage relatively to each other in a horizontal plane;
an up-and-down mechanism for moving up and down said bonding tool;
a chip recognition camera being disposed to be lower than a level of a substrate mounted surface of said substrate stage to thereby recognize said chip held by said bonding tool from a position below said chip so that said chip and said substrate are subjected to positioning on the basis of a recognition result of said chip recognition camera and said bonding tool is moved down to bond said chip onto said substrate, wherein a lower surface of said chip is recognized by said chip recognition camera when the lower surface of said chip is located substantially on a level with a chip bonding surface of said substrate, and
a substrate recognition camera disposed above the substrate stage to recognize the substrate mounted on the substrate stage,
wherein the chip and the substrate are subjected to positioning on the basis of recognition results of the chip recognition camera and the substrate recognition camera,
further comprising a chip tray for receiving said chip, said chip tray being located to be lower than the level of the chip bonding surface of said substrate.

4. (Currently Amended) A bonding apparatus comprising:

a bonding tool for holding a chip;

a substrate stage for mounting a substrate thereon;

a moving mechanism for moving said bonding tool and said substrate stage relatively to each other in a horizontal plane;

an up-and-down mechanism for moving up and down said bonding tool; and

a chip recognition camera being disposed to be lower than a level of a substrate mounted surface of said substrate stage to thereby recognize said chip held by said bonding tool from a position below said chip so that said chip and said substrate are subjected to positioning on the basis of a recognition result of said chip recognition camera and said bonding tool is moved down to bond said chip onto said substrate;

wherein said chip recognition camera is focussed so as to recognize a lower surface of said chip ~~is recognized by said chip recognition camera~~ when the lower surface of said chip is located within ± 5 mm of a plane in which is located a chip bonding surface of said substrate.